

# A M A T E U R R A D I O

APRIL 1964



Vol. 32, No. 4

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# "AMATEUR RADIO"

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## OUR COVER

Readers should refer to page 9  
where a more detailed explanation is  
given regarding the cover feature.

## FEDERAL COMMENT

★

## COLLECTIVE RESPONSIBILITY

The title of this Comment was inspired by one of the same name in  
the R.S.G.B. "Bulletin" which pointed out some of the dangers ahead for  
Amateur Radio if the Amateur does not present a united front at all future  
International Telecommunication Conferences. The Editorial made three  
points which briefly were: (i) Region II. and III. Societies must establish  
active regional organisations as in Region I.; (ii) the I.A.R.U. must bring  
home to administrations, particularly in newly developing countries, the  
importance of Amateur Radio as a Service and a scientific hobby, and (iii)  
the I.A.R.U. must be represented at every International Conference as well  
as Frequency Allocation Conferences.

The portent and sense of these points are to be commended and gener-  
ally have always been supported by the W.I.A., but because of different  
conditions, both political and geographical, are not necessarily our answer  
to this challenge. The W.I.A. has made two approaches in the past to all  
Region III. Societies to form a Regional organisation but without success.  
New Zealand has also made at least one unsuccessful attempt along the  
same lines. Regarding the second point, the International Amateur Radio  
Union can undoubtedly contribute by way of suitable literature and a  
constructive public relations programme, and also in relation to the third  
point, must always be represented at International Conferences as the head  
of an established Service.

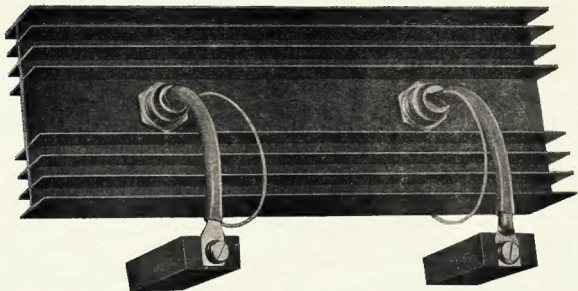
However, the W.I.A., despite its unsuccessful approaches in Region  
III., does believe that many benefits may accrue by regular exchanges of  
information between Region III. Societies in relation to regulatory matters  
and frequency problems. The answer may lie in the publication of a  
Region III. Newsletter between the appropriate Societies of which there  
are at present ten. Although it is conceded that the I.A.R.U. can do some  
good with newly developing countries, it is believed that perhaps more  
can be achieved by Amateurs in the particular country. Each administra-  
tion must be made aware of its Amateurs and the role they can play in  
the community, and this can best be done within the countries' bound-  
aries. In relation to I.A.R.U. representation at I.T.U. Conferences, although  
in favour of this idea, the Institute believes that a proper briefing on  
Amateur matters for the national delegation is more important and has  
achieved such status in the last few years.

Although the above arguments may appear to decry the points made  
in the R.S.G.B. Editorial, the intention is rather to point out alternatives  
which suit our Institute better and which we know are workable and  
successful in our case. However, the W.I.A. does believe that the status  
of the International Amateur Radio Union must be enhanced and sup-  
ported in every way possible. Perhaps financial support of the Union is  
the next step in this direction. Any means of presenting the Amateur's  
case in his country or at International conferences must receive the whole-  
hearted co-operation of Amateurs in general and National Amateur  
Societies in particular.

FEDERAL EXECUTIVE, W.I.A.

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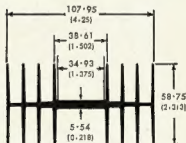
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M131a

# TALKING POINT—WNG-CDR. C. G. HARVEY,\* R.A.F., VSIU (Ex VK2AQU, VK3UO)

WITH an astounding increase in amount of expensive commercial equipment now used in Amateur shacks, it may interest the S.W.I. and the newer operators to know the simple equipment which keeps VSIU airborne on sideband.

Using a hodge-podge of components dating from 1930 to the present, acquired from Japan, U.S.A., Australia, U.K., Germany, China, Holland and Malaya, and paid for in as little of the national currencies as the market permitted, a reasonable signal has been kept on the air for years with the absolute minimum of expense.

With present-day pressure for modernisation and miniaturisation, it will come as a surprise to many, to hear that the rig still uses two electrolytics acquired in the early 1930s, and that the receiver uses four more, which are about twenty-three years old. There are also two power transformers and a set of 80 of similar vintage, which were salvaged from discarded domestic t.r.f. radios of the same era. Some old fashioned glass and carbon resistors are still in use, and there are even one or two paper capacitors which still pass a leakage test, despite twenty-five years in Amateur service.

In the station equipment there are such treasures as a toilet roll coil former, panels and shields cut from aluminium acetate gramophone records, film cassettes used as coil shields, two oxo tins, a chassis made from a refrigerator ice block tray, another from a baking dish, a buffer coil wound on a pillow box (which used to hold the dog's morning pills), some knitting needle shafts and stand-offs, nylon fishing line line insulators, and even portion of an electric iron element.

One component is known to have been flown above 50,000 feet in a jet, and near the speed of sound, other disposable gear saw wartime service throughout the Pacific in flying boats and land planes, others, such as a dynamic speaker, came from discarded pre-war receivers and even from motor cars.

Strangely enough, these old components give no trouble. Presumably, those that were going to fail in Amateur service did so long ago, leaving the remainder reliable for as long as their chemistry will permit. Some of the oldest tubes, particularly an 803, 866 and a 523, are most reluctant to lose their emission despite operation over a period which must far exceed their intended life.

The acquisition of potentially useful bits and pieces, and the welding of them into a series of station projects, has been great fun. The biggest expense has been in time spent seeking inspiration. Whilst the station's appearance would not melt an *XYL*'s heart, it has, with few exceptions, operated reliably and consistently. In fact, it has often received praise for its quality and performance, even with low power and simple antennae. In its sideband configuration, it has been on the air nearly every day for the last six years,

and has survived almost three thousand QSOs (including potential D.X.C.C.), from Singapore, with its 90/90 temperature-humidity climate. Although it sounds like a relic of the breadboard era, it has been modernised to the extent that it now boasts a Kokusai mechanical filter and a navistor pre-amp. for the receiver.

However, it started life in the mid thirties as a c.w. station using plywood panels and chassis, with brass nails for tag strips, it lapsed briefly into a.m., graduated to the aluminium era and was subsequently modified for s.s.b., which it has been pounding out for about five years.

You won't find all the circuits in any book, but for the price of a good suit, spread over thirty years, it has provided countless hours of instruction, construction and enjoyment. Of course there have been periods of frustration and even despair, but these have generally been amenable to solution after an hour or so with the handbook, or a discussion with knowledgeable and helpful Hams on the air.

One day, inevitably, there will be a sudden smell of burning and the gear will suffer a major failure which will finally be uneconomic to repair. Alternatively, the demands on Hamming time, or for house room, may be such that I will eventually have to "go commercial", or go QRT.

When that time comes, I will look back on many interesting and useful years of experimenting and the satisfaction of finding out for one's self a wide range of electronic communication and constructional techniques.

If my experience is indicative, and I know many who agree it is, the lessons learnt and the attitude of mind engendered by success and failure in such projects stand the new Amateur in such good stead that it is to his lasting advantage technically, mentally and financially, to resist the temptation to indulge in commercial equipment at too early a stage in his Amateur career.

The new Amateur may be dismayed and misled by the reverence for formal mathematical design data shown by many text book authors. Whilst a theoretical approach has its points, the fundamentals set out simply in the A.R.R.L. and R.S.G.E. Handbooks, if understood, are more than sufficient to allow the beginner to experiment freely and successfully with many different combinations of components to those shown in published circuits.

It is seldom necessary to build equipment exactly as shown in the latest magazine or handbook, which, for commercial reasons, probably includes the latest tubes and components, which can't be obtained cheaply, if at all, in some locations or countries. It is as well to remember that whilst tube types change almost daily, basic principles do not, and a stage gain of 10, for example, can still be obtained as easily with an old 56 as with a new fanged 6CL6.

Intelligent observation is the first key to success. Although a shack full of the latest test equipment helps (if you know how to use and interpret the results), much interesting and success-

ful work can be done with a multi-meter, a capacitor leakage tester, a grid dip oscillator and a little patience.

When it is realised that transmitter output must be increased four times to double the field strength, the virtue of slightly increased home station efficiency is doubtful, particularly if only a marginal increase of a watt or two in 150 is provided by the latest super-duper miniaturised retro-coging output four times as much as its slightly less efficient older brother. Any deficiency arising from the use of lower power can generally be made up quite readily by more attention to detail in the aerial system, where value for money comes better than in buying power transformers and p.a. tubes.

For those whose inclination is to experiment with junk box gear, I have a sincere plea. Don't take risks with old power transformers or power supplies. Check and double check for internal shorts and correct connections. Earth the laminations, and make sure the mains connections cannot stray in contact with other parts of the circuit. Do not use wiring methods which can leave h.t. or high voltage a.c. on, when there is no clear indication that the transformer or supply is alive. If you must fiddle while the high voltage is on, use one hand only, think what you are doing and don't work in bare feet. An occasional "belt" is inevitable, but try and make sure that it is low voltage only and is received as the result of taking a deliberate risk, rather than as the result of absolute mental or physical carelessness. A mild tickle does you the world of good, but a solid, unexpected belt can only benefit your next of kin. Whenever in doubt, "Switch to Safety" and think the problem over, before trying again. Finally, make sure that metal chassis are permanently earthed well enough to blow line fuses in the event of a mains-to-chassis fault, that microphones are earthed and that headphones are properly isolated from the h.t. line.

Make it a rule never, never, never to poke round inside a live chassis while wearing phones, or holding the microphone.

Faulty headphone insulation caused by perspiration, for example, can effectively earth your skull, so that the first inadvertent prod on the h.t. line with a finger puts you on the hot seat of a miniature Do-It-Yourself electric chair.

People who are superstitious about electric chairs, also make a point of using double pole switches and three-pin plugs on all mains leads, and bleeders on the filter capacitors. They also make sure that single pole switches are in the hot side of the mains. While you're about it, better make sure the rest of your family know how to kill all power in the shack if they notice an aroma of fried Ham!

Home made gear need not be dangerous. Safety and performance do not go hand in hand, and it is part of an interesting challenge to equate these conflicting requirements as economically as possible using available resources. Why not have a bash?

\* C/o. Hqrs. Far East Air Force, R.A.F., Changi, Singapore 17.



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# HOW TO WIN A CONTEST

ADRIAN ROFE,\* VK2HE

**M**Y attitude towards contests, as set out in "Amateur Radio" (Mar. 1964, p. 17), met with disapproval from many who entertained different views. Why, they asked, adopt this defeatist outlook?

After a thorough review of the situation and some deep thought I have undergone a mental turnaround. The erstwhile mouse is now a fully grown lion. Believing that the spectator knows far more about the game than the players, I unashamedly take pleasure in advising the keen enthusiast how to win a contest.

First of all change your occupation and become an employee in an appropriate industry where you will be stood down for your three weeks' annual leave at Christmas time. Accumulated sick leave will add, say, another week. It is presumed that after the manner of some of our valued domestic animals, you have spent the winter months increasing the thickness of your hide. If you are lucky enough to be the favourite nephew of a deceased aunt or have won a substantial prize in the lottery, you will have moved to a good location and acquired a 150 watt transmitter, a 300 watt modulator, the best receiver and a high gain antenna.

Rid yourself of all unco-operative members of your household by sending them for a month's holiday to Central Australia. Anyway, they will not have your participation in any Christmas festivities, so they might just as well be in the desert. However, one helper is desirable to provide you with numerous cups of tea, late meals and bowls of water and a sponge, which are the only ablutions permitted. Baths are out for the duration, so get yourself an effective fly spray to ward off the increasing incursions into the shack of those noxious pests. If you like well-matured gorgonzola cheese, you will like yourself all the more by the end of the contest.

Widely advertise the fact that you are entering the contest, not for yourself, but for the Division. You might add that if any certificates or trophies you may have won are subsequently retained in your shack that will have been an oversight. Work on all your radio friends—while they are still your friends—to get them to promise to forego Christmas holidays and remain in the shack to give you numbers. If any of them seriously threaten to compete with you, request that they listen to your test transmission. Your over-modulated signal should cover a large portion of the band and your voice resemble the sound of a buzz-saw—dennutralise your final if necessary to achieve this effect. This is guaranteed to bring about their early withdrawal from the contest. T.V.I. proof all receivers within a radius of five miles from your QTH.

Now the contest has commenced, consider all contacts in relation to their numerical value to you, but do be polite to all operators. Give everyone a 5 and 9 signal report, even if you have to ask him to repeat his number several times. Flatter his modulation. He likes it and will call you day after day to hear your repeated words of praise. Waste no time looking up the fellow's name, he is either John, Bob, Peter, Ken, Keith, Geoff, Colin or Ted, so have a stab at it and you will probably be correct. Promise to send an immediate QSL card—he will call you day after day to ask why it has not arrived thereby increasing your numerical tally.

For 1 pointers—be fairly nice but brief. If the fellow wants to describe his gear, so long as you have his number, let him ramble on while you work other stations.

For 5 pointers—be nicer and less brief and find time to comment on something irrelevant, such as the weather or their gear.

For 10 pointers—be positively effusive. These are definitely to get the V.I.P. treatment. Send them the gift of a piece of gear such as an old converter to improve their reception of your signal. Invite them to bring their families to stay at your home. Having v.f.o'ed, onto their frequency, either hold the contact for an unreasonable length of time or conclude it and continue to call CQ on the frequency. If you do the job well these fellows will turn a deaf ear to all other callers.

While awaiting a band opening, start a group discussion among the locals—the bigger the group the better. Quickly sneak away when the band opens and you will have several numbers in the bag before the others wake up to it.

A tough local competitor can always be called on the telephone when you will ask him to wait while you see who is at the front door. After about 10 minutes he will return to the shack to find you working the DX.

Try tuning the band from the high to the low frequency end—it has never been done before. Do not be surprised to find a station there quite high in frequency isolated like a shag on a rock waiting to pounce on any caller. He is well outside the tuning range of the modern receiver and, unknown to all but you, has been there since the beginning of the contest. The fellow has called CQ thousands of times and has heard the DX come and go. When all other stations have been

worked, his closest approach to a contact is "Sorry, old man, I just cannot copy you." The fellow will be most grateful for the contact and you have made a friend for life.

Thankful for a few crumbs like a starving animal he will lick your hands and your feet. And your arsenal of alibis is of no avail to excuse you from listening to his life's story. His gear is set out on several bread boards, his antenna constructed of fencing wire and his shack is shared with Daisy the cow. Yes, he has only been able to work JAs and the odd VK8, but these chaps are always in such a hurry to get away. You listen to a detailed description of his papsalump paddocks—such good fodder—and the sow's latest litter and his aunt's last illness. You pray that his signal will fade out—it never does. You try to start some topic of conversation but, however hard you wreck your brains, you can think of nothing to say because as the potential winner of the contest you are completely out of touch with world affairs, having not read a newspaper nor listened to a broadcast nor spoken to a normal person for days. Wars have been waged, lost and won without the conscientious competitor being aware of the fact. You just have to listen to his tale and take it. Your impending dissolution is saved by his call to dinner and he leaves you with your promise to look for him at the same time tomorrow.

The contest is now over and the next job is to complete the log and add up your score for submission to the contest committee. This must be done honestly and accurately. The fellow you claim to have worked every day may turn snakey and send in a log. Do not claim an unreasonable variety of VK8 contacts—the committee has the latest edition of the Call Book. If you believe that under certain circumstances 2 and 2 can be made to equal 5, remember that the committee possess an adding machine.

Now, fellow amateur operator, that you have won the coveted trophy, the problem arises as to how best it can be displayed. I have seen these things covered with dust and lying in a neglected corner of the shack, so put it in your most prominent place for all to see.

A concluding note from that wise originator of smoke signals, Smokey Joe, "Let any evil that might be construed therefrom be already in the mind of the reader".

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# A Junk-Box Frequency Standard\*

## INEXPENSIVE OSCILLATOR-MULTIVIBRATOR UNIT

ROY R. CAMPBELL, D.D.S., W4DFR

**M**OST Amateurs these days provide themselves with a 100 kc. crystal "calibrator"—either built into the receiver, or external—which furnishes harmonic signals accurately marking the low frequency limits of the various Amateur bands. However, since the harmonic frequencies fall at intervals of 100 kc., it does not provide similar calibrating signals for the upper or lower limits of some of the phone sub-bands. In addition, there are many other occasions calling for markers between 100 kc. points. Such markers are useful in the calibration of a v.f.o., in spot-frequency schedule operation, or in accurately calibrating a receiver dial.

For the most part, such a piece of gear has been a fairly costly item; even those that have been available on the surplus market have been by no means inexpensive. In the unit described here, I have attempted to hold the cost down to suit the average pocketbook while still maintaining an accuracy, if proper precautions are used, closely approaching that of more expensive equipment. Most of the components for the original model were picked out of the junk box; with all new parts, the cost should not exceed \$15.00. Other than the crystal (which is not a strict requirement), no part is classified as "precision," although certain of the components add value if care is used in their selection. Power for the unit may be taken from most receivers, but a self-contained source can be very modest. Simple VR tube regulation is desirable where line-voltage fluctuation may be a problem.

### OSCILLATOR

The circuit of Fig. 1 starts out with the 6BH6 oscillator. The Colpitts arrangement was chosen because it lends itself well to either crystal or self control. Crystal operation will provide a more stable signal, of course, but the stability with self control is surprisingly good and will serve for most calibrating purposes. When using a tuned circuit for self-excited operation, no coil tap is required. This is an advantage, especially when a multilayer coil is involved. The circuit will work over a wide range of frequencies, which makes it additionally useful for checking crystals, or for using higher frequency crystals for spotting certain frequencies. The output is rich in harmonics.

### THE MULTIVIBRATOR

The second stage in Fig. 1 is primarily a multivibrator using a 12AU7 dual triode. As most readers know, a multivibrator is a resistance-capacitance oscillator that is quite unstable by itself, but which can be stabilised by driving, or triggering it with a stable

• This unit provides spotting frequencies at 10 kc. intervals. With a little care, accuracy approaching that of much more expensive equipment can be realised. If you already have a 100 kc. crystal calibrator, the cost can be reduced still further.

oscillator of higher frequency. Thus, it becomes a "frequency divider". In this instance, the multivibrator frequency is 10 kc. which provides harmonic spotting frequencies of usable strength at 10 kc. intervals up to at least 30 Mc.

Although a multivibrator will "lock in" with a driver frequency as high as 100 times the multivibrator frequency, adjustment becomes quite difficult if the driver frequency is more than 10 or 20 times the desired multivibrator frequency. The multivibrator, being an unstable oscillator, has an increasing tendency to jump from one sub-multiple of the driving frequency to the next as the driving frequency is raised. That is, if the driving frequency is 1,000 kc., the multivibrator frequency may jump from the desired frequency of  $1,000/100 = 10$  kc. to  $1,000/99 = 10.1$  kc., or to  $1,000/101 = 9.9$  kc. For this reason, the oscillator is designed to operate at 200 kc. self-excited, or 100 kc. crystal-controlled when driving the multivibrator.

The multivibrator may be switched off by means of S1; S1B opens the cathode of V1A in all except the m.v. position. The oscillator signal is then simply coupled to the grid of V1B which operates as a resistance-coupled amplifier. Since this switching results

in a small change in oscillator frequency, C5 is provided in the oscillator circuit to compensate. This capacitor is adjusted so that the oscillator frequency remains the same with the multivibrator in or out of the circuit.

### OUTPUT AMPLIFIER

The 6AK5 amplifier is included principally to isolate the multivibrator from output loading effects. It will, however, provide some amplification of oscillator harmonics when the multivibrator is switched out. A parallel-tuned tank connected across the output terminals of the amplifier may be used to accentuate certain harmonics if desired, although the simple resistance coupling shown provides good signal strength up to at least 30 Mc.

### CONSTRUCTION

Components may be assembled on any chassis of convenient size. There is nothing particularly critical about the arrangement of parts on the chassis. If the crystal is not used, the capacitance of C1 should be about 1.5 times that of C2. The exact values will depend upon the inductance of L1. I used an r.f. choke from an old diathermy oscillator. The inductance of this choke is about 1.6 mH., and it tunes to 200 kc. with a capacitance of 780 pF. at C1 and 530 pF. at C2. The odd values were made up of standard values in parallel combination. These capacitors should be mica, preferably silver mica, and the coil should have a reasonably high Q.

Critical adjustment of capacitances can be avoided by using a slug-tuned coil, such as the Miller type 4414 which has an inductance range of 1.3 to 2.1 mH. This coil should be capable of tuning to 200 kc. with standard values

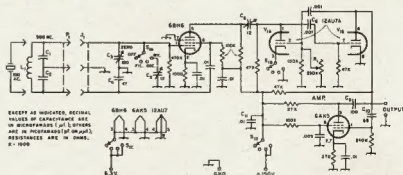


Fig. 1.—Circuit of the Frequency Standard. Resistors are  $\frac{1}{2}$  watt. Fixed capacitors not listed below are disk ceramic.

- C1, C2—See text.  
C3—100 pF. midrange variable.  
C4, C7, C8, C9, C10—Mica, preferably silver mica.  
C5, C6—NPO ceramic trimmer.  
C11—Paper.

- J1—Five-prong ceramic tube socket.  
L1—See text.  
P1—Five-prong plug.  
R1—Linear control.  
S1—Ceramic relay, switch: 2 sections, 2 poles per section, 4 positions.

\* Reprinted from "QST," January 1964.



of 7,500 pF. at C1 and 5,100 pF. at C2. The five-prong socket J1 will accept most crystals as well as a five-prong plug-in coil form.

## ADJUSTMENT

The oscillator should be adjusted first. The output terminal should be connected to the antenna terminal of a receiver. The circuit should function with most crystals, regardless of frequency. With higher frequency crystals feedback may be adjusted by means of C3. When a 100 kc. crystal is used, C3 is used to "zero" the crystal against WWV.

To adjust a 100 kc. crystal, turn on the receiver b.f.o. and listen to one of the harmonics. The beat note should vary as C3 is adjusted. Now turn off the b.f.o. and tune in WWV. A beat should be heard between the 100 kc. oscillator and WWV's carrier. Adjust the beat to zero by adjustment of C3. Broadcast-band signals at exact multiples of 100 kc. also provide good reference signals. Although there is a small tolerance allowed, most broadcast stations hold within a few cycles of their assigned frequencies.

If the receiver is equipped with an S meter, this may be used as an accurate indicator of the beat between the 100 kc. oscillator and the standard. As the beat approaches zero, the reading on the S meter will fluctuate, more rapidly at first, and then more slowly, until at exact zero beat the needle will remain motionless. If C3 is adjusted further in the same direction, the fluctuations will resume. C3 should then be returned to the point where the needle is stationary.

The adjustment with the tuned circuit instead of the crystal is similar except, of course, for the preliminary adjustment to approximately 200 kc. as described earlier. If the broadcast band is used as a reference, only those signals at exact multiples of 200 kc. will be useful. C3 may be used as a final trimmer.

With the receiver b.f.o. turned on, you should now hear harmonic signals every 100 kc. (or every 200 kc. with self excitation) throughout the tuning range of the receiver, up to at least 30 Mc.

## ADJUSTING THE MULTIVIBRATOR

Before attempting to adjust the multivibrator itself, zero-beat one of the 100 kc. (or 200 kc. with self excitation) harmonics on a receiver. When S1 is turned to the m.v. position, the oscillator frequency may change slightly. Without touching the receiver tuning, adjust C5 to bring the signal back to zero beat.

In adjusting the multivibrator, the broadcast band is a convenience. Since the American broadcast channels (and Australian.—Ed.) are assigned at exact multiples of 10 kc., the multivibrator signals should fall at zero beat on all broadcast carriers when the multivibrator is correctly adjusted. If the adjustment is not correct, a beat note will be heard on each broadcast carrier (with the receiver b.f.o. turned off). In such cases, pick out a broadcast carrier in a clear channel and listen to the beat note as R1 is slowly adjusted. As R1 is adjusted the beat note

should suddenly hop to a different frequency. At some point within the range of R1, the beat note should drop to zero. When this occurs, check one or two other channels to make sure that the multivibrator signal is at zero beat with these carriers also.

The multivibrator is rather touchy as to the strength of the driving signal. If the driving signal is too weak the multivibrator will have a tendency to jump from one submultiple to another. If the driving signal is too strong, "squeezing" may take place which will be evidenced by a myriad of unidentified beats as the receiver is tuned. Overdriving may also cause the multivibrator to produce signals at 20 kc. intervals, rather than 10 kc. intervals. In any case, it should be possible to make corrections by adjustment of C6. Under proper operating conditions, an oscilloscope or peak-reading v.t.v.m. should show a 10 to 20 per cent. higher voltage at pin 7 of the 12AU7 than at pin 2. C6 may have to be adjusted differently for the crystal than for the tuned circuit.

While the crystal harmonics will be reliable shortly after the power supply is first turned on, it is advisable to allow plenty of warm-up time for the multivibrator and the self-excited oscillator,

if the latter is used. The amount of power consumed by the unit is negligible, and the Amateur who finds use for it two or three times a week will soon learn the value of leaving the heater power on all the time, even when not in use.

## ACCURACY

The principal difference between this unit and one costing many times as much is in the long-term stability. Changes in humidity as well as temperature will affect the accuracy. It is the compensation for such effects that runs up the price of more expensive equipment. However, the short-term stability is excellent and, in the hands of a careful operator, highly accurate measurements can be made. The only requirement is that the oscillator frequency be checked against WWV immediately before the measurement is made and again immediately after. The latter check is perhaps the more important, especially if the measurement has taken more than a moment or two, for it tells whether the oscillator frequency has changed during the measurement. If there has been a change, the amount can be estimated to determine if the accuracy is sufficient for the particular purpose. If not, the measurement can be repeated. ●

## Technical Correspondence RECEIVER FRONT-END DESIGN

Editor "A.R." Dear Sir,

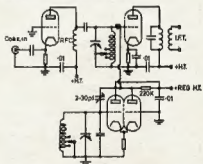
The article on receiver front-end design by W0DAN in January 1964 "A.R." leads to consideration of ways to achieve equivalent performance in practical circuits.

The desired r.f. amplifier characteristics may also be obtained by use of a grounded grid stage, with considerable simplification of circuitry. A circuit following this line of thought is given in the new R.S.G.B. Handbook. Here two halves of a twin-triode are used, the first being a grounded grid amplifier, the second a triode mixer, with two tuned circuits coupling them.

For all those except the unfortunate few living adjacent to powerful high frequency transmitters, even greater simplification may be achieved by using a single tuned circuit between the two stages. With this configuration problems of gang tuning and alignment disappear, while band changing can be effected by tapping up the coil from the earth end, thus eliminating problems of switch capacitance and lead inductance.

Provided sensible L/C ratios are used, together with high Q components, e.g. air spaced coils of generous diameter and spacing, the rejection of unwanted signals should still compare

more than favourably with the conventional receiver front-end using two tuned circuits and a pentode r.f. amplifier. In the circuit shown, the tuned circuit is not loaded by the antenna, and tube loading is less than with the grounded cathode stage.



I have included the circuit of an oscillator circuit popular in ZL. It has many advantages, including low harmonic output and ability to oscillate with almost constant output over a wide range of frequencies. The feedback capacitor is adjusted to the minimum value required for reliable oscillation at the highest frequency required. Output may also be taken from the cathode if required.

It must be kept in mind that the performance of such a front-end will be degraded if it is followed by a mixer stage having poor signal handling capabilities, or a poor signal-to-noise ratio. For best results of all it should be followed by a high or low frequency band-pass filter, the aim being to get the most selective element in the receiver as close to the antenna as possible.

—Barry Kirkwood, VK2AUJ,  
ex ZL1DR, ex ZL31J.

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by G. A. BRIGGS, with James Moir, M.I.E.E., as Sub-Editor

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When *Sound Reproduction* ran out of print in 1962 after sales totalling 47,000 copies since 1949, it was decided to revise the book in sections. *Audio and Acoustics* deals with this aspect of the subject. Out of the 140 illustrations, only 30 are repeated from SR3. This fact, plus the valued help of Acoustical Consultant James Moir as sub-editor, means that the A.A. book is mainly an original work.

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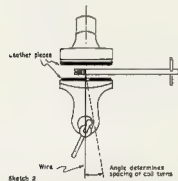
# Method of Winding Coils\*

## TO GIVE EVEN SPACING TO ANY DIAMETER

W. C. GREEN, G3QG

Visiting a model engineer friend recently the writer was interested to note the way in which he made the small springs for his models. It was realised that the method he used would be suitable for making radio coils, and after reading hundreds of books and magazines, and not having seen it described before, the idea is hereby passed on. The tools and material used are simple and easy to make and obtain. No great skill is needed to make coils even up to 1 inch diameter and no one need fear the result.

The first thing to make is the winding mandrel (see Sketch 1). This can be of anything round—such as wood dowel, paxolin tube, or metal rod, the latter for preference. A slot is cut in one end of the rod, deep and wide enough to take the gauge of wire that is to be used. At the other end of the rod a means of rotating it is needed. Next, provide some padding material, such as scraps of leather. This, with a bench vice and the necessary wire, is all that is needed for the production of perfect coils.



Sketches to illustrate the idea explained in the text. It certainly works very well, as seen from some samples sent in by G3QG with his article.

### MAKING THE COIL

Place the padding between the jaws of the vice and grip the mandrel between them; tighten it up so that it is just possible to turn the mandrel. The slotted end of the mandrel should be about half way along the vice jaws (see Sketch 2).

The wire is then fitted in the slot in the mandrel, which is turned with one hand as the wire is fed in with the other. Holding the wire at right angles

to the jaws of the vice will give a close-wound coil which can be wound as long as required.

If the wire is fed in at an angle to the vice, a spaced-turn coil will be the result. As the wire is wound on the mandrel, it will look to be close-wound, but on releasing the coil the springing-out effect will give the spacing. It is possible to wind a coil beginning it as close-wound and then to change the spacing several times over its length merely by altering the angle of feeding in the wire. There is no need to straighten the wire—just feed it in from the reel. The writer's first coil made in this way was of  $\frac{1}{2}$  inch diameter wound with 18 gauge tinned copper wire, and was perfect.

As in making coils by any other method, the diameter of the mandrel will govern the final diameter of coil required because the coil will expand on being released. For example, to wind a  $\frac{1}{2}$  inch diameter coil the diameter of the mandrel will have to be less.

The method of making coils as described here is so simple that it leaves you wondering why you never thought of it yourself—there need from now on be no more tying the wire to a door handle and walking towards it, only to find when the coil is half-made someone wants to open the door. ●

## Book Review

### AUDIO AND ACOUSTICS

By G. A. Briggs

This slim volume of 163 pages was written as a replacement for "Sound Reproduction" which ran out of print in 1962. It appears to the reviewer to be an ideal "short text" for those who need a quick appraisal and a broad understanding of this field. This book covers a great deal of ground in a few brief pages written by perhaps the most prolific writer of books on loudspeakers and allied subjects.

Price 17/9 plus 1/- postage. Our copy from McCull's Authorised Newsagency, 132-133 Elizabeth Street, Melbourne.

### INDEX TO SURPLUS

By Roy E. Pfaffenberg, W4WKM

This is an index to over six hundred magazine articles published in "QST," "CQ," "73 Magazine," "Electronics World" and "Radio Electronics." It gives the title of each article and a brief description of the subject matter. At a price of approx. 18/- per copy, it is unlikely to appeal to a great number of Hams. However, several copies of this index should be held by any library which has the magazines listed as it is a very quick method of finding much sought after information.

Published by Amateur Radio Publishing Inc. Our copy from Victorian Division, W.L.A., who obtained the book from America.

## OUR COVER . . . HINTS AND KINKS

### SOLDERING MINIATURE VALVE SOCKETS

Many Amateurs using miniature glass button base valves adopt incorrect wiring practice when soldering components onto the valve socket base lugs. The cover photograph shows the disastrous results that can occur, with the valve being ruined due to glass fracture.

When wiring a miniature valve socket it is very important that the lugs be correctly positioned. This can only be done by using a wiring jig, available for a few shillings each. An old valve is not a satisfactory substitute.

The wiring jig, seven or nine-pin, is a very robust device which is inserted into the valve socket whilst the parts are soldered onto the socket lug. The jig keeps the small valve socket lugs correctly spaced so that the valve will accurately fit into the socket.

The cover photograph shows the actual effect of incorrectly positioned miniature valve socket lugs. When the valve was inserted excess strain was put on the glass button base, the valve then warmed up during operation. This created additional stress and the base fractured.

A complaint was made to the makers who examined both the valve and socket. They pointed out that the particular socket used did not comply with the required standard, and in addition the lugs were incorrectly spaced. They rejected the claim for replacement under warranty which, under the circumstances, was only fair.

Since that time the correct metal wiring jigs have been used during construction and no further trouble has been met. The low cost of the wiring jigs is far lower than the cost of replacing a broken valve.

The jig should always be removed from the valve socket before testing the circuit. The heavy metal construction acts as a very effective direct short to all pins and does make the filament transformer groan under the load!

Modern pte or porcelain sockets are a preferred type as one low cost "bakelite" type of wafer socket imposes excess strain on the valve base, because of incorrect socket design.

Be warned and invest a few shillings in a wiring jig to save having to replace broken valves. Don't think it can't happen to you. The cover photograph shows that breakage does occur and your valve may be next!

### REMOVING BROKEN DRILLS

When a metal drill breaks off below the surface of the material being drilled, drive two thin wire nails down the flutes of the drill; with a pair of pliers twist the nails in an anticlockwise direction to remove the drill from the work—N.Z.A.R.T. "Break-In."

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★ Drake 2B Receiver, Price £150.

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\* Reprinted from "Short Wave Magazine," January 1964.

## VOICE OF AMERICA TRANSMISSIONS

## OSCAR III.

The many Amateurs in this country who listen to the V.O.A. "Radio Amateurs Notebook" programme each Sunday, will no doubt be interested in learning the following vital statistical figures relating to the V.O.A. transmitting station at Greenville, N.C., U.S.A.

Total acreage: 6,194.24.

Transmitters: Six 500 kw., six 250 kw., six 50kw.

Transmitting power: 4,800,000 watts. Total antennae: 64 (directional transmitting antennae, 73).

Antenna towers: About 400.

Height of towers: Up to 400 feet.

Antenna types: Rhombic, curtain and log periodic.

Total cost: About 24 million dollars.

Beginning of construction: Feb. 15, 1980.

Opening date: Feb. 8, 1963.

Steel for towers: 3,000 tons.

Concrete required: 36,000 cubic yards.

On-site paved roads: 30 miles.

Transmission lines: About 200 miles.

Electrical power requirement: 5,000,000 kilowatt hours monthly (based on daily 16-hour operation).

Micro-wave relay system: Six stations covering 265 miles from Washington studios to Greenville receiver station.

Voice of America programmes are on the air 24 hours per day in thirty-six languages—as part of the world's largest and most powerful long-range radio facility.

—BERSINE, WIA-L304E.

I am pleased to let you all know that Oscar III. has been going well, and most all the defects are now out. Many tests have been completed and now it is expected that Oscar III. will be up about July or August, 1964.

As a number of you already know, Oscar III. is a communications satellite. It is expected that it will be long way out in space, up to 1,000 miles. This will make the period longer, but you will have a much longer time in which to contact it, approximately up to 20 minutes, and possibly longer.

You will transmit to it on a frequency of 144.1 Mc.  $\pm 15$  kc. That gives you a 50 kc. band-width. You will listen for your replies on a frequency of 145.9 Mc.  $\pm 15$  kc.

An urgent request that the frequencies of 145.9 Mc.  $\pm 15$  kc. be kept clear just before and during this new sphere of operations on the 144 Mc. band, namely Project Oscar III. Let's make a gentleman's agreement for the duration of these operations. Help your fellow Ham who wants to indulge in this new era of long distance communications. We can all help by requesting the possible offenders to move to another frequency, and possibly help him to go up or down in frequency. You may have a crystal you can loan, etc.

You call CQ Oscar III., announcing your call clearly and distinctly. One minute seems to be long enough, then switch over to receive signals answering you. Do not stay too long as there are others wanting to get a contact. If you are alone you may make four contacts in the one fly past. I suggest that you practice a bit and get into the swing of short contacts. Of course if you are the only one about, say, during the day time, you may be able to hold a contact for 10 minutes or so.

The mock-up model of Oscar I. has been around the States. In N.S.W. it has been as far as Lismore, Gosford for the Field Day, to meetings, in shop windows, on t.v., and in the newspapers. It has to date been quite a success. VK4 have it for their Convention on 4th and 5th April. Owing to the relatively short time we can have the model, it will not reach all the States. This is, however, unavoidable. It has to be back in Sydney at the U.S.I.C. by 21st April. It is hoped that it will have visited at least five States.

—VK2HO, Aust. Co-ordinator.

★

### IT HAS BEEN SAID . . .

"A Radio Engineer is a person who passes as an exacting expert on the basis of being able to turn out with prolific fortitude infinite series of incomprehensible formulae calculated with micrometric precision from vague assumptions based on debatable figures taken from inconclusive experiments carried out with instruments of problematical accuracy by persons of dubious reliability and questionable mentality for the avowed purpose of annoying and confounding a hopelessly chimerical group of esoteric fanatics referred to all too frequently as practical radio men . . ."



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Over long listening periods the DX appears to be at an all-time low, at least at this QTH. It seems the only good contacts being QRT'd are those using the maximum power and those with big antenna arrays. Conditions are very spasmodic, and no longer can you go to the shack at random and work the last far off country. 14 Mc. however seems to be the old standby. This band is opening occasionally to Europe, Mediterranean, etc., whilst the bands to the north are weak on most evenings at varying signal strength.

The skip right now seems to be very selective. Quite a workable signal say to VK3, but in VK5 only just audible. I suppose the reverse is happening on occasions. However, I think activity from down under could be improved by a lot more activity from the VK boys.

An instance was brought home to my notice on a recent evening. A certain ZL was relating to a friend how he tuned an apparently dead 14 Mc. band, to try it out he called CQ and from this one call he was rewarded with no less than three new countries.

We must realise that we are a long way from the DX that we are used to, and the heaviest populated Ham areas and, incidentally, have to contend with a QRM situation we cannot possibly imagine. Then let's go to it. A CQ occasionally to let them know we are out and about—if they can't hear us, they can't work us.

## NEWS AND NOTES

ST2AS is the present call of GKPKQ (ex VS1FO), now active from the Sudan Republic. This rig is a home-built s.s.b. rig using a 6CC60 filter, 6X4 aerial ground plane GAAT, which is mounted on the roof and works extremely well. He is at present active on 14 Mc., but hopes to be on 3 Mc. very soon. QSLs should go via R.S.G.B.

The QSL Bureau for Sierra Leone has been taken over by SLIHN, P. N. Heywood. The Technical Institute, Freetown.

QSL Bureau for the Arabs Amateur Radio Club has now been taken over by PJ3AO, Cards, etc., to P.O. Box 278, San Nicolas, Netherlands Antilles.

Syria, never easy to work, has been represented on 14 Mc. a.m. by YK1AA, giving the time and name and power. He is active around 1500 on the high end of the band.

V54RS has two xtal controlled frequencies to his original spot of 14501 Kc. The others are 14500 and 14502 Kc. QSLs come weekly from this station.

ZS1MI, on Marion Island, has been intermittently active around 1800 on 14 Mc. c.w. and asking for QSL via ZS1OU. Usually openings are of short duration with signals not of very good strength. (488)

From the end of March FB1BWV should be active from Crozet Islands. Marcel, the operator, is with a party of men now erecting shelters on the island. He is sometimes heard on 14500 Kc. c.w.

From April 15-28, VK2AGH should be active from Lord Howe Island on c.w. and s.s.b. Bands will be 20, 40 and 80. Please call him 8 k.s. up or down from the following: 3505, 7005, 7025, 14025 Kc. On s.s.b. 3690, 7090, 14290 and 14290 Kc.

French Colonies, FOS, and New Caledonia, FK3, operated by Chuck WA1WBH on c.w. and s.s.b. Frequencies 2505, 7005, 14005 Kc. 1450 Kc. for s.s.b. 21 Mc. will also be tried out conditions permitting.

The s.s.b. exciter now used by FT1ZD is to be changed to FB20Z. Amsterdam Island call later it will go to FB20X. Kerguelan Island, thence to FB1RW, Crozet Island.

Active at the moment CR4AD from Portuguese Timor on c.w. at or about 14500 Kc.

SK1AN is active on 14 Mc. c.w.

CE2ZI is legal and maritime mobile. This is the radio of the "Presidente Pinto" en route to Easter Island.

VP1KI WASSU reports that all QSLs have been answered that had s.s.b. to Dec. 37. No QSLs for those did not abide by the above mentioned. Ken now has HT2Z and Drake ZB and is active on 40, 20, 15 mx on s.s.b. and c.w. He will be glad to take any call letters.

Upper Volta, XT2, TZ1AU and TZ1AZ have tentative plans to operate from XT2 during the second week-end of the A.R.L.I. cruise contest. After this they hope to go to SVI,

Then after returning to TUE a later trip is planned to TZ, 7G1, TY and SV. TZ1AQZ go via WA4BE.

St Helena, ZD7HB is back in England. While at ZD7 he made 1,000 QSOs with 104 countries. Mailing of QSLs is beginning. Ch. Rodriguez, BL Brandon and Asagala: From March 10 Harvey VQHBH will be active on Chagosas VQHBPC, then from other islands in the order given. Calls will be VQHBPR, VQHBPR, VQHBPA respectively.

will be s.s.b. and c.w. on 14 Mc. VQHBQ is still reported QRV

Sudan ST1WP has been reported on 14 Mc. s.s.b.

ZL3VB may be on the s.s.b. from Chatham Islands in the near future.

Comore Islands: FB2KD should be QRV any time.

Yemen: HB5AET/W4 was worked on 14 Mc. s.s.b. and HB5YG/W4 was worked on 40 mx c.w.

Marion Island: ZS1MI will soon be QRT. If you need him act quickly. Listen around 1410 Kc. around 1800 G.M.T.

4U1TU Geneva. This station now counts as a new country for D.X.C.C.

Ken Maybrey, who reports calls are now reported active from this rare QTH LA5F/P, LA5B/P, LA5M/P all on c.w., and LA5P/L/P on s.s.b.

Antarctica: Dave Tremaine ZL1AV is flying down to take over the New Zealand Base Station ZL1AA. The South African Base will be activated by ZS4AD on 14 Mc. s.s.b.

It is reported that Steve Perry, W1BB, has worked 75 countries on 160 mc. Anyone worked him from VK1?

From 1900 upwards some very good signals have been heard, mostly on s.s.b. around 9000. These include: KH5IF, WA5BXU, K4CNY and K4BZ.

Cape Verde Islands: CR4AD is now on and should be active for some time; been reported around 1410 Kc. on s.s.b.

XW6Z active and also HB1AA on 7 and 14 Mc. c.w.

## ACTIVITIES

Ken VK3TL reports having worked on 14 Mc. s.s.b.: CX1NE, VQ1GDW, WALANO/3A, Z54CY, K4WLD/RO1. On c.w. 14 Mc.: AF50B, CP2QZ, EL2A, H51Z, UA1UA, UA1UO, Z54RF, K4LDF, K3JAN, K5GAB, CP2EZ, DU4PAR, FO4AA, K4GBX, LUS, PY1, VP8QZ, VP8HJ, VQ2JZ, Z54, BR4AJ, Bert QSLs received. ACPTF CR7N, EB4J, E1P, FO4AA, FT1ZT, JT1AG, JT1KAA, MP4BEE, PZ1AX, U1B1L, VP7NS, Y41A, YONIA, Z54RF, COBEO, FB5EZ, JT1CA, SV0WT, VP8AJ, VQ4RP, Y1B1JM, 4X4BH, 4X4HJ, FK3BB, XE1YI, KX6BP, and LU4UH.

W1A LO20 heard the following on 21 Mc. c.w. but the mode not stated: VS1VL, VS1LK, VS7BD, VP4EZ G3DJ, JA0JG, G3BUE, FO3MM, W4SC2R, K4XDBJ, W44J, W4HNA, W6RY, W6H1H, W6LXC, 4X4LE, IT1GAL, 4X4BH, 4X4HJ, FK3BB, XE1YI, KX6BP, LU4UH.

## QTH CORNER

VS9MB—Am. Radio Club, R.A.F., O.A.N., E.F.P.O. Box 180, C/o. G.P.O. London.

ZD5HB—via W3CTN.

6W8AC—Jean Claude Wagner, P.O. Box 971, Dakar, Senegal.

Z5EZ, Z5EZ—via Z5HBHB, B. P. Avdon, Box 816, Johannesburg.

54W5—via K1LHB.

FT5MB—C/o. W3QZ.

ZS1MI—via ZD7QD.

MP4THA—Box 200, Abu Dhabi.

VK4QK—via W6HYG, 1011 Tam O'Shanter Drive, Bakersfield, California.

VP1KH—C/o. R.S.G.B.

H3E2P—C/o. W4MUV, Box 298, Manassas, Long Island, New York.

EX1ME—C/o. DL1LC, Box 344, Cologne, Germany.

SA1VU—via D.A.R.C., P.O. Box 89, Munich, Germany.

MP4DAH—MP4QBQ—Ring Crosbie, C/o. Schlumberger SA, ADMA, Das Island, via Bahrain, Arabian Gulf.

UR1BU—K. K. Thomas, Valke, Telle 14-1, Tartu, Estonia.

TC3ZA—via GUS, S. L. Hill, Rivenhall, Holwood Park, Farborough, Orpington, Kent.

SN1MM—Op. W4BPD, via W4ECI, 3101 Fourth Ave., Birmingham, S. Alabama, U.S.A.

SN1HIA—Mr. J. S. Alcock, F5H507, Ibadan, Nigeria.

TL5AS—S. Wajgor, Box 301, Bangui, Central African Republic.

FT5MB—via W3QZ.

TT1AN—via W6LYQ.

MP4QBF—P.O. Box 73, Doha, Qatar, Arabian Gulf.

Z5TR—V. V. Parkhouse, P.O. Box 28 Mbembane, Swaziland.

Q54TJ—via DJ4OP.

KV4DE—via W4BWN.

VQ4J—via R.S.E.A., Box 30071, Nairobi, Kenya.

J4JAF—via W6SAL.

SL1TI—T. Lloyd, Founah Bay College, Freetown.

FU4AC—Box 104, Santo, New Hebrides.

YK1AA—Box 35, Damascus, Syria.

PJ1MC—via W3QZ.

SE1HE—WHETN.

015BW—S. Walton, C/o. Paul Smith Construction Co., P.O. Box 1398, Mombasa, Kenya, East Africa.

SL1HX—C/o. Police Hdqrs., Freetown, Sierra Leone.

YV6AA—Hammarslund Manufacturing C/o., P.O. Box 7388, G.P.O., New York, U.S.A.

HL1TV—via W6MML.

The best one heard this month: A W who had just finished his home-brew i.k.w. transmitter

—was on the air when his friend called around to see the new job. Owner had to go out for a moment or two so he asked friend to operate in his absence. Owner was sitting out of the door when friend calls for advice on what to do if anything should go wrong. Owner replied: "Aw, just tune for maximum smoke!"

Many thanks to all those who sent in items for this month. It helps a lot please. Please bear with me until we get the hang of things here. Thanks to AJ 588, Ken Y1L, W1A-1490, DX-Press, W4STQY, DX Magazine.

With the bands on the improve, I'll say 73 for now, Bert VK3BB.

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# YOUTH RADIO CLUBS

Good news from Canberra this month—our third A.O.C.P. in the Lynnham High Y.R.C. Jim Watson sat in January and passed out sections. He received the news the day before his 16th birthday (is now in his last year at High School). He achieved this after only 13 months of keen interest in Radio and the A.O.C.P. study in his leisure time has helped his school work—he is in the few at the top in Maths and Science. His future is a toss-up between Radio Astronomy and Medicine. Jim hopes to be VK1JR—please give him a call. Also please notify me of all A.O.C.P.s from your area.

**Hints to Club Leaders:** Lads at this age CAN do A.O.C.P. if they are really bright and well up in their school work, provided parents and club leaders make sure that only leisure time is used and the study is completed before the final year of High School. If it cannot be completed before then, aim at the Y.R.C. Inter. or Senior Certificate together with the building of some units able to be used in the Transmitter and/or Receiver.

Apologies for an ambiguous paragraph last month. Somehow, the competition for the best c.w. operator lost the vital c.w. part. There will be two till the end of the year (Inter Certificate necessary) and Over 15 (at least Junior Certificate necessary). It is probable that the best of the Y.R.C. boys will be likely competitors should be in training now.

Random news: Two ex-Y.R.C. members gained first and third places respectively in

are using crystal controlled transceivers on 144, however stations answering those chaps have to v.i.o. up onto the frequency on which the transceiver is set.

Oscar III information suggests that this latest satellite is ready for launching soon. It will station 14.5° plus or minus 25 sec. and retransmit on 145.5 plus or minus 25 sec. With a bit of luck VK Hams should work several new countries on 144 Mc when this thing goes. Y.R.C. boys will be told as soon as possible after launching.

General News: V.H.F. Group general meeting in February resulted in Brian 5ZV being elected President, Bob 5ZDX Secretary, and Mac 6ZLM and Eric 5Z6J Councillors. Eric 5Z6J and Bob 5ZDX are both working on the new Ham Mast SAO has had the t.v. transmissions running quite nicely on 432 Mc. he has been encouraged by 5Z6J, 5Z6L and 5Z6N. George 5Z6V, the other VK3 Amateur t.v. operator, has recently forsaken his hobby to indulge the sins of the flesh. This is deemed to be a top law-enforcing pastime. 73, 5Z6C.

## WESTERN AUSTRALIA

What do you think is the value of v.h.f. beacon transmissions? In W.A. the Group has run the 50 and 144 Mc beacons over a number of years. During this summer those beacons were not used. Did you miss them?

By now the beacons in W.A. should be back on the air. With the South Australian beacons by now the beacons in W.A. should be back on the air. With the South Australian beacons by now the beacons in W.A. should be back on the air.

What also needed is a systematic record of when the beacons are audible. This applies to country points as well as interstate. A log of when the beacons are audible in each country town would be an interesting and valuable project.

The C.H.F. Group would, I feel sure, be happy to arrange with some interested person in a country town, the loan of a receiver so that the person could gauge whether coming on v.h.f. with generally the S.V.F. beacons is heard and only a few actual contacts made. One of the more interesting contacts was with 5ZLP in the National Field day Contest.

Several: After completing extensive checks on the 144 Mc band, I have found that 5ZLP at Bill and Allen's on Sunday, Feb. 16. Unfortunately a keying defect occurred on Monday, Feb. 17, and until Mac 6ZLM returned from the coast the beacons were not on the air. An announcement will be made at the next meeting, but country members can be reasonably confident that it will be on by Feb. 24.

their R.A.A.F. Radio Apprentices' Course at Laverton. They were Terry Crews (ex Gosford High) and Graeme Evans (ex Yaree High), both now being Corporals.

Some nice encouragement in VK3—full membership in the W.I.A. awarded to Jim Watson (VK3JH) for his excellent work on the Handbook from A.W.A. for George 1GB and Roger 1RD, offer of a scholarship annually by the Avon either at club level or national level to a Y.R.C. type at about Inter. Cert. stage. Three guineas prize for first to gain Inter. Radio-Telegraph (Grade 3) and Wireless Telegraph (Grade 3) Certificate; one guinea and box of parts for another Walt Chart competition. Surely other Divisions could do as much—some of this could be the Southern Mouse.

Did anybody write to Mr. Hiew in Johore? What do you think of a Novice Licence for a few of your lads? Wouldn't it help Science Education a great deal more cheaply than Sir Robert's \$5,000,000? 73, 1KMC.

The response to the Y.R.C. scheme has proved that Radio is a popular hobby but has increased the demand for experienced personnel who are willing to assist. We of the Amateur Service who have the most to gain by the scheme are the ones who weigh in and help. You can help in a number of ways—

1. Give lectures to a club on radio theory.
2. Help teach practical work to a club.
3. Give demonstrations of Amateur Radio in the Avon either at club level or national level, inviting two or three members of a club to your QTH periodically.
4. Keep the stores of the equipment officers full of discarded equipment, old radios, components, etc.

It is not fair that we allow the local science master, radio man, etc., to run these clubs unaided. What you do help you will find a reward that is far greater than anything that can be expressed by the boys themselves. So read the articles below written after a demo. at the Christian Brothers, Y.R.C., Dundoo, Vic. then do something positive to assist the non Amateur who is battling on to help others learn your hobbies. 73, 5ZMX.

## THE RADIO BUG COMES TO DUNDOO

The seven members of the recently established Youth Radio Club at the Christian Brothers, Dundoo, Dundoo, have recently obtained an unforgettable experience recently. To some this marked the culmination of their struggle with the basic aspects of Radio transmission and reception and others a stimulus to obtain a greater knowledge and experience of Amateur Radio.

The demonstration of an actual Amateur receiver and transmitter in action was made by Mr. Ray Ellis (5ZDE) and Mr. David Buck (5Z6N). Also present were Mr. Bert Maddrell (5Z6P), Mr. Phil Lavery, the club's ham instructor.

A five valve transceiver was installed and showed the club members the difference between dormitories and contact established with the mobile unit installed in Mr. Ellis' car, where they drove down the half mile long drive and returned his car at the front gate of the property.

Under the guidance of Mr. Buck, each of the club members took a turn at the controls. A little persuasion was necessary for some members to overcome their "mike shyness". Then to relieve Mr. Ellis, two of the club's members joined in the mobile unit and assisted in answering queries from the members at the College.

Another Amateur, Mr. Allan Boyle (5ZNG) was heard on the frequency so he jumped in for a three-way contact. Jumping at this opportunity to let their voices be heard by the club members, Mr. Boyle and Mr. Ellis began to shower him with detailed descriptions of every radio appliance they had built. Mr. Boyle then commenced writing the equipment and improvements he was hoping to build in the future. The demonstration concluded with an inspection by the members of the club. Mr. Boyle had installed in his car.

It was over, but in a couple of short hours everybody had learnt from practical experience the thrill of talking and being answered by someone using home made radio transmitting equipment. Mr. Boyle had been interested in Radio, but after this day we are keener than ever to study for our Amateurs' Certificate so we may build and operate our own transmitter.

Sub-Editor, Len Poynter, VK3ZGP.

Very little news for this issue. The closing date of the last day in month inconvenience many. I must have my copy in by the 2nd of the month, so it is imperative that I have your notes by the end of the month.

By now we are using 53-55 Mc. and hoping that we are not knocking Channel O or vice versa. The 53 Mc. net in VK3 is gaining popularity and many have converted their m.s. gear for this frequency of 53.53 Mc. More of our activities next month.

Included this month is an up-to-date list of officially ratified records of the longest distance v.h.f. contacts in Australia. When will they be bettered? It's up to you. Let's hear of your efforts. David 3GV is anxious to hear from you—5Z6P.

## LONGEST DISTANCE V.H.F. CONTACTS

At 24th February, 1964

New South Wales:  
80 Mc. VK3ADZ-VIAEQO, 8/4/59, 7200 miles.  
144 Mc. VK3ASZ-3-ZLJAG, 31/3/61, 1343 mi.  
1213 Mc. VK3AZ-VK3CZF, 4/1/53, 47 miles.

Victoria:  
80 Mc. VK3ALZ-XEUFU, 1/6/56, 848 miles.  
144 Mc. VK3ZEA-VK4HD, 27/10/61, 954 miles.  
288 Mc. VK3ALZ-VK7LZ, 10/7/60, 363 miles.  
576 Mc. VK3IAKE-VK4XW, 11/12/49, 80.1 m.  
2880 Mc. VK3XA-VK3ANW, 16/8/60, 9.8 miles.

Queensland:  
80 Mc. VK4HD-WPQW, 13/8/58, 573 miles.  
144 Mc. VK4XAZ-VK7ZAO, 30/1/61, 1107 miles.

South Australia:  
80 Mc. VK3ATC-VK3CH, 30/8/47, 5361 m.  
144 Mc. VK3QOL-VK3BO, 30/13/61, 1323 miles.  
288 Mc. VK3ALZ-VK3ZCG, 23/1/61, 363 miles.  
1815 Mc. VK3LA-7-VK3ZCR, 5/1/53, 10 miles.

Western Australia:  
80 Mc. VK3EE-JAEP, 30/10/58, 5490 miles.  
144 Mc. VK3BO-VK3OL, 30/13/61, 1323 miles.  
576 Mc. VK6LK-7-VK3ZDS, 8/15/63, 101.1 m.

Tasmania:  
80 Mc. VK7LZ-JAHL, 3/2/59, 5425 miles.  
144 Mc. VK7ZAO-VK4ZAX, 30/1/61, 1107 miles.  
288 Mc. VK7LZ-VK3DL, 10/1/60, 483 miles.

Papua:  
80 Mc. VK9AU-KHBY, 20/4/60, 4213 miles.

## SOUTH AUSTRALIA

80 Mc.: With the impending loss of 80 to 88 Mc. a good deal of thought is being given to how the 13 to 54 Mc. net will be populated. Many folk advocate populating the band from 54 Mc. down so as to reduce Channel 8 t.v. and i.t.v. No definite decision has been taken but VK3 and no doubt our policy will depend on that adopted by the Eastern States, who are more concerned with Channel 6.

Several 5ZK openings were available over February VK3 was worked on the 15th and VK4 and other VK6 on the 5th, 9th, 11th, 14th, 15th and 25th.

Gary 5ZK and Bob 5ZDX, along with several other generous helpers, have built a 50 Mc. converter and supplied instructions on a simple transmitter for 5ZDX. This chap seems quite interested in 80 Mc. and made the initial approach, so here's hoping the sporadic X is kind to him. One thing is certain, Channel 6 will be king size for 80 Mc. buffs in JA, ZL, KR, KR6, VK3, etc.

Tim 5TV, near Clare, about 80 miles north of Adelaide, is working into Adelaide (from Clare) occasionally, but contacts here are less frequent as the video i.f. strip, which determines the V.F. system, is badly faulty in a 30 or 30 db. reduction in signal to noise ratio. New stations on 8 recently include 5ZL (13.5 p.s. beam), 5ZK (on g.f.m.) and 5ZT.

144 Mc. Peter 5FM works Col 5CJ in Mt. Gambier every morning at 9700 C.G. Peter is a localised V.F. Adelaide Hills and beams in the general Melbourne direction for these peaks. Victorian folk are advised to listen for Peter around 144 C.G. or 144.1 (approx.) Chris 5ZFA, near Millicent in South East, is another good bet for VK3 & max. Chris is getting into Adelaide. I don't know his frequency. David 5AW is back at Penola permanently, but is understood to be having a good deal of t.v. trouble. 5ZL (13.5 p.s. beam), 5ZK (on g.f.m.) and 5ZT.

# S.W.L.

Non-admir: Ian Woodman, W1A-13006

Greetings fellow S.W.s. As you will note from the above heading this section of "A.R." has a new Sub-Editor to whom all matters relating to this page should be forwarded in future. Information from the various States is at zero, so the S.W.L. Group still exist in your State? Are New South Wales and Victoria the only active States? I would be pleased to receive notes from other areas.

In the absence of any news I may be able to persuade some S.W.s. to do their listening on the 160 mc band, that is between 1800 and 1850 kc. The main requirement is an old broadcast set with an r.f. stage for maximum sensitivity by correct alignment of the i.f. transformers, then you can alter the r.f. section so that you can tune down to 1800 at least. If you have a signal generator or grid dip meter that covers this frequency, you are in business.

First set the aerial, oscillator and r.f. trimmers at half their capacitance, next couple your signal on 1800 kc. to the aerial terminal via the output lead of your signal generator, or if using the g.d.c., then wrap six turns around the g.d.c. coil (insulated wire please) and connect the other end to the aerial terminal. The greater the turns the easier it will be to find the signal. Set the tuning gang to minimum capacitance (wires out of mesh) and turn the oscillator core so that the inductance is being reduced—the core will be moving out of the oscillator winding—and you should hear a note.

The next step is to adjust the aerial and r.f. coils by adjusting the cores so that their inductance is being reduced—the cores are moving out of their respective windings—and this will produce a peak in signal strength when correctly set on the 1800 kc. signal. The tuning gang is now set to minimum capacitance and the aerial and r.f. coil inductances are fully in mesh, tune in a broadcast station in this tuning region and peak the aerial and r.f. cores for maximum signal strength.

Set the tuning gang back to minimum capacitance where the 1800 kc. signal is, and you will have to turn the aerial r.f. coil in and rear capacitor to bring the 1800 kc. signal up to maximum signal strength. If the trimmers cannot be peaked, you will have to alter the turns of the aerial and/or the r.f. coil.

Also of help to you in finding this 160 mc band are these signals which you may be able to hear at your location. On 1800 kc. is RFE (Wairarapa Vic.), the last station on the broadcast band. The frequency of 1810 kc. is used by six of the Royal Flying Doctor network for inter-station communication. On 1615 kc. is a New Zealand Navigation Beacon using Morse identification of ON—a useful guide for working DX across the Tasmans. The Melbourne Metropolitan Fire Brigade can be heard on 1605 kc. using the call sign VKNB, and the outstations of the Port Augusta Royal Flying Doctor network use 1585 kc. channel. The yacht clubs in Victoria use the 1725 kc. frequency and are heard at the weekends when the weather is fine. On 1665 kc. is the Victorian Division of the Red Cross. VLFV can be heard on 1750 kc. The frequency of 1790 is allocated to Fishing Trawlers, and the Amateur band commences at 1850 kc. The Victorian Division have a network operating on 1825 kc.

## NEW SOUTH WALES

It is pleasing to see that during the first two months of 1954 a keen interest is being taken within VK1 as evident by the increase in material received in this column. There are queries from VK4 and VK7 for the three-transistor circuit, and the aerial booklet.

Thanks to the efforts of the letter and note writers my replies were to their satisfaction. Don L3222, the No. 1 S.W.L. in VK2, recently heard on 14 Mc. AP3, 513, 857, UM3, O25 and L3222, and now has 174 countries. Don L3222, our President, is taking his trip to Sumac Island where he will spend his annual leave. A new aerial is being erected by Don L3222 now in VK4. We hope details of the aerial and DX heard by it will appear in this column in future. Russell L3222 uses a modified ARS with a hawkeye detector on 14 Mc. Don L3222 heard 11, G8, G3, UA4, UQ1, KWO, HP9, VU2 and VY. Exams have kept Ross L3222/VK4 off the air for a few months—we wish you well Ross with the HSK.

Chas L3211 tells of a prominent radio listener who was heard telling our Secretary "You know that article about obtaining a booklet on aerials, well I have been dialling L3211 all day and no answer. There are a few more copies of the three-transistor circuit and aerial booklets available, so just write to me if you want one, enclosing a postage stamp. There are other people heard from were Keith L3259, Brian VK1, Ross Berkeley, D. Robertson, Geo. Barnes and Bro. Kincaid (JAXK). 72, L3211.

## DX LADDER

	Conf.	Hrld.	Zms.	S.S.W.	W
K. Trebblelock	28	389	40	—	36
D. Granley	113	274	38	30	104
A. Westcott	93	150	31	9	107
M. Hilliard	84	265	33	34	108
P. Drew	88	238	29	27	105
M. Cox	80	223	31	48	153
C. Abernethy	57	100	31	—	—
G. Earl	45	161	36	90	125
N. Harrison	44	119	39	4	39
I. Thomas	43	130	39	18	97

— — — — —

## NEW CALL SIGNS

DECEMBER, 1953

- VK1MR—Mrs. Verie Weston, 6/273 Annac Pde., Kingsford.
- VK300—K. Seppala, 80 Bridge Ave., Oak Point.
- VK3ALL—E. G. Clare, Station 5, Palla St., Griffith: Postal: P.O. Box 146, Griffith.
- VK3AD—J. A. Hodgson, 141 Grove St., Kooragang, Waugga.
- VK3AYK—A. F. Jacobson, 9 Ormonde Ave., Epping.
- VK3IAY—A. Liley, 206 Eastern Valley Way, Willoughby.
- VK3IAY—N. D. H. Sides, Kingston Park, Cessford.
- VK3ZDR—G. A. Cruickshank, 36 Killara Ave., Riverwood.
- VK3ZD—J. W. Walker, 31 Gordon St., Rosebush.
- VK3ZG—H. A. Grouse, 17 Ivanhoe Street, Merrickville.
- VK3ZHL—D. Jennings, 82 Unwin St., Berley.
- VK3ZML—M. L. Steward, 68 Westbrook Ave., Wahroona.
- VK3ZJ—R. W. Young, Myall Place, Engadine.
- VK3ZAD—J. M. Drighlin, Luback St., Sydney.
- VK3AFR—G. R. O. Farthing, 13 Moffatt St., Avoncliffe Heights.
- VK3AYM—Gordon Park State School Youth Radio Club, Morrell St., Glenroy East.
- VK3YK—L. E. Waller, 46 Pepperal Ave., Lyndale.
- VK3ZAT—Schallars, 2 Queen St., Moa.
- VK3ZB—G. S. Hart, 73 Harrison St., Box Hill North.
- VK3ZBR—D. M. Bennett, 367 Clayton Rd., Clayton.
- VK3ZSW—A. S. Weight, 12 Aramula St., Shepparton.
- VK4FX—M. L. Downing, 7 Svensmans St., Bundaberg.
- VK4TO—G. G. Taylor, 10 Angela St., Ballaburra.
- VK4ZP—J. J. Lindsay, 22 Ilwara St., The Gap.
- VK3BI—B. J. Warrman, Victoria Rd., Clare.
- VK3GG—A. A. Middleton, 10 Struan Ave., Enfield.
- VK3GW—E. C. Schmidt, 383 Chubunga Rd., Eden Hills.
- VK3OF—W. A. Ward, C/o. Mrs. Fooks, Warrumb.
- VK3YB—B. A. White, 53 Milchem Ave., Lower Mifflin.
- VK3ZMZ—M. B. Cleenley, 35 Edwards St., Col. Light Gardens.
- VK3ZJ—J. R. Harris, 1 Elmo Ave., West-Parma.
- VK3ZJ—J. L. Sinclair, Mt-L.
- VK3MP—M. T. K. Power, 8 Richardson St., Cessford.
- VK3Q—G. F. Hunt, 64 Tuckfield St., Fennant.
- VK3Z—J. A. R. Smith, Flat 2B, Commonwealth Estate Ltd., Alfred Rd., Graylands.
- VK3ZCN—A. L. Martin, 15 Hag St., Bumbury.
- VK3ZG—H. E. Chipper, 15 Joseph St., West Leederville.
- VK3ZGZ—C. H. Sturcke, 81 Margaret St., Cottesloe.
- VK3ZM—J. H. Hart, 97 Norwood Ave., Launceston.
- VK3ZJ—N. R. Gatenby, "Crazy House", Longford.
- VK3EF—E. Parker, 1818u Strass, Via Mt. Hagen, T.P.N.G.
- VK3W—W. A. Esterling, Port Moresby, 14 N. C.
- VK3LF—T. F. Frack (Rev.), Konda, T.P.N.G.
- VK3TO—T. V. Gencuski (Rev.), Banta, W.H.D.
- VK3ZOB—G. R. Barkworth, Beroka, T.P.N.G.

## Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

## AUSTRALIAN D.X.C.C.

Editor "A.R." Dear Sir,

The suggestion put forward by Bram Jellitt, VK3AB, in the March issue of "A.R." relative to the number of "available" countries is very good, but unfortunately it does not go far enough.

If VK3AB's intention is to place everyone on an equal footing and thus give VK3AYZ, who will be licensed next month, the same opportunity as VK3AB (who was licensed in 1925), he would have to further revise the list so that those countries which are at present not represented by Ham on the air are also deleted from the list.

In this connection I refer to places where the only activity has been as the result of DX-peditions—some readily come to mind such as Bouvet, the Antarctic, Santa Fe, Assumption, Aldabra, Rodriguez, St. Brandon, Aves, Clipperton Islands, etc., etc. I have listed only a few of the many that have been visited.

None of these are available to the Ham who starts next month—true, they may possibly be activated again at some future date, but at present they do not exist.

It follows therefore that we must take these off the list if such list is to be a true reflection of what is available now.

I trust VK3AB will see that the thing would be a little cumbersome if you had to revise the list every month, depending on current DX-peditions.

On the other hand you could quite easily add a few more countries to the list now that A.R.S.L. has granted separate country status to an office building in Geneva (I.A.R.U. Edges), and grant similar country status to each foreign office of the company of the world. An embassy owns the land on which it is situated in the name of its own government and therefore becomes a new foreign land. The Australian Embassy in Washington D.C., U.S.A., would be "Australian U.S.A.", or the French Embassy in Canberra would be "French U.S.A.". Each of these could be visited by W4SPD in turn and thus add another 1,000 or so new countries to the list. It is just as logical as adding an office building in Geneva.

In addition, each of the Bases in Antarctica could be called a separate country—each is operated by a different foreign power and I cannot imagine why A.R.S.L. has not done this already.

If, however, the list is shortened, then the larger figure should include all countries worked all time, i.e. since the applicant came on the air—why pick World War II as a commencing point? Some of us could add that the no longer have things to hunt.

One other point to be considered is the frustration of the top DXers who find when they have worked all countries on the list, that they no longer have things to hunt.

My advice to VK3AB is to do what I did and that is to set yourself a target (in my case it was 300 countries), and when you reach that target you retire. Perhaps a least there will be some countries left should you ever change your mind.

—Alan Brown, VK3CX

## SUBSCRIPTIONS DUE

All members of the W.I.A. are reminded that annual subscriptions are now due and should be paid promptly to their Divisional Secretary. Non financial members will not receive a copy of "A.R." and back copies may not be available upon request. To preserve continuity of your files of "A.R." please pay your annual subscription now.



## FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

### FEDERAL QSL BUREAU

Details of the annual U.S.S.R. world-wide DX Contest are to hand. The contest period is from 1100z, May 2, to 2100z, May 10, and only 15 hours of continuous operation can be claimed. Full details from this Bureau.

The WS QSL Bureau is now located at P.O. Box 259, Chalfont, PA 1904, U.S.A.

The following ex-Finnish Amateurs are now permanently resident in Australia: OH4NT (now VK2QO), OH2XK (now VK2NS), and OH2KJ (now VK2XK).

The CN7 QSL Bureau is now located at Box 161, Beira, Mozambique.

The Arabs Amateur Radio Club announces details of its Arabs, Arab Award. Details from this Bureau.

ETJPT, in acknowledging receipt of information as to the best time and band for VK contacts, states that Ets SAV, 33C, 3HO, 3EP, 3JK, 3ZW, 3XEN, 3PT, 3BP, 3RT and 3USA are all active. States that best time for ET/VK QSOs is (phone) 1300-1500z.

The new address for the Arabs (P12) QSL Bureau is P.O. Box 473, San Nicolas, Aruba, Netherlands Antilles. QSL manager is PJ3AO.

The Singapore Radio Chasers Club announce a new certificate for r/c chasers with club members, VB1CM, JG, KA, GQ, DD, DK, JW, LG, LT, LU, LV and MC. Details from this Bureau.

Many thanks to Mark, VK1CM, for promptly supplying the call sign and QTH of ex OE1LW. He is now VK6KH. Seems that one or two of you read these notes!

Details of the Budapest Radio Club's Budapest Award may be had from this Bureau.

Writer spent the first week of March camped alone in the bush in the Maryborough (Vic.) area. Due to the absolute lack of any surface water, the prime objective of the trip—aluvial prospecting—was entirely defeated, but gave time for meditation, catching up with the backlog of Ham literature, and visiting the stamping grounds of his youth and hunting for the old orchards he raided as a boy. Letter is now non-existent and forcibly reminded writer what changes occur in the passage of half a century. A new Federal QSL Manager was almost necessary for at 0300 one morning a big dry limb of a tree, under which the camp was sited, broke with a tremendous report, fell on the tent tearing by and tent and ended up one foot above writer's head! However, worst feature of the trip was being forced to listen to 3.5 and 7 Mc. phone on a 4.5 Mc. transmitter!

Statistics for the W.I.A. year ending Feb. 1964 show that 56,000 cards were handled by this Bureau as compared with 47,000 and 44,000 in the two immediately preceding years. Peak year was in 1947/8 when 69,000 QSLs passed through. Writer has graph of handling since 1947 which shows the lull in 1953/4 when only 20,000 cards came in for handling. When space is not so tight, will publish the graph which may give the 11-year cycle students food for thought.

Winner of the 1963 "CQ" offered in these notes in March "A.R." was VK3TL with a consolation to the runner better luck next time to the other eight applicants.

allocations available, having consideration to the pressure being exerted on band space. Les also pointed out that the Branch had had a most successful year as far as attendances at meetings, the average being 46 present at each meeting for 1963. A vote of thanks, carried by acclamation, was later made by Bill 2XT in recognition of Les' wise leadership during the year.

So fast was the voting that Vic. had to get all the details down in shorthand and then ask the boys what he had written when it was all over. Those who have taken office for the new term are: President, Frank 2APO; Vice-Presidents, Lion 3CS and Keith 2AKK; Hon. Sec., Gordon 2ZSG; Hon. Treasurer, Bill 2XT; Zone Correspondent, Keith 2AKK; Social Sec., Max McLachlan; Social Treasurer, Kev. 2ZKW; V.H.F. Liaison Officer, Des 2ZDN; and QSL Officer, Brian 2AYL.

Following his election as President for the ensuing year, Frank gave a short address assuring members of his desire to continue the excellent work of the past which has resulted in the Branch being one of the most progressive in Australia.

At the conclusion of the A.G.M. the ordinary monthly meeting was held and then followed a programme of films kindly arranged by John 2XQ, and in the capable hands of our official projectionist, Rodney 3CN. Des 2ZDN also played an historic tape recording of a conversation on 432 Mc. between Sydney and Newcastle.

The Branch 2AWK has completed tests on 160 mc and now uses 1420 kc. as well as 3595 kc. for the Monday night broadcast. In addition, there is a relay by Gordon 2ZSG on 14.443 Mc. The new band frequency is being well received in all parts of the local area and members having difficulty in copying the 82 mc signal are advised to try 1650 and hear the difference. The operators of 2AWK are anxious to receive reports, especially from local members and listening watch is maintained on the three frequencies during

the call-backs. Broadcasts commence each Monday at 1900 E.S.T.

Following the October examination for the A.O.C.P., Paddy Maloney of Toronto has been notified of his call, 2AKU. At present, Paddy is working 40 and 80 with low power, phone and c.w. He is very keen on n.w. and would appreciate a call. Lion 2ASJ is now back on 2 mc and is getting good reports, thanks to the efforts of Doctor Mac 2ZMO. Bill 2XT has been using the 2.4 mc rig of late and has had some very encouraging reports of good signals. Belmont Bob and Max, Susan and Jan are all anxiously waiting the results of the A.O.C.P. and if all goes well for them there should be no lack of signals as a big building programme is in progress.

Please don't forget that the next meeting is to be a week later than usual as that Les Jenkins, the lecturer, may attend the v.h.f. group meeting which coincides with the national first Friday. This means then that Friday 10th is the date and the lecture is about receiver front ends. Make a note of the change and please try to be there to hear a most interesting lecture. We'll all be in Room 13 of the classroom block at the Technical College, Tighes Hill, at 8 p.m. on the 10th. Next month the meeting night will revert to its usual time, May we expect the pleasure of your company? You are assured of a good time, so see you there, 75, 2AKK.

### VICTORIA

#### MOORABBIN & DISTRICT RADIO CLUB

January through March has been quite an eventful time for our Club. The effort for the National Field Day resulted in a score which far exceeds our last year's total, and we are optimistic as to the competitive result. The party participating were formed into three groups, all within the radius as prescribed in

## BRIGHT STAR CRYSTALS

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### NEW SOUTH WALES

#### HUNTER BRANCH

The annual general meeting, which was held on 8th March at the Technical College, was conducted in the usual democratic manner. The Divisional President (Vic. 3VL) took the chair after Les 2RJ had presented his report as retiring Branch President. Les gave a very detailed report of the year's proceedings and urged all Amateurs to use all the frequency

#### SILENT KEY

It is with deep regret that we record the passing of:—

VK20A—Bob Winch.



the rules. Kevin SARH headed the first group operating 14 and 30 Mc.: Ken 3ACS the second group operating 21, 2.5 and 1.5 Mc.; Alf 3LC the third group operating 144 and 1 Mc. 144 Mc. was put on the bench at 11.00 under the leadership of Ken 3ZNV. Those other members helping were Harold 3AFQ, Roy 37L, Bill 3CB, Clive 3ZB, 3ZC, Graham 3ZMG, Graeme 3ZIP, Bob 3ZRD and quite a few junior members. In all, everything went off well without undue stress, and all members had a jolly time.

On Friday evening, March 5, a 3.5 Mc. tx hunt was held. Harold 3AFQ and Ken 3ACS hid the tx on the bench at 11.00. Ken, only a mile or so from his home, then confused the issue by reducing power to a minimum, and using a four foot vertical antenna, with the result the Peter 3AFQ was the only member that found the tx.

On Saturday, March 14, the Club collaborated with the committee of Maribyrnong College in South Rd., Brighton. In putting on a working display of Ham Radio. By the interest shown by parents as well as students, the effort was most successful.

Coming events: Friday evening, April 3, a White Elephant Night. Saturday evening, April 10, the 1st session of the 1964-65 season, being held at the home of Harold 3AFQ. Friday evening, April 17, our general meeting at which a lecture on computers will be demonstrated. Members are asked to bring a bracket, so I urge all members to endeavour to come along. 73, 3LC.

## QUEENSLAND

### TOWNSVILLE AND DISTRICT

Here I am back again in the north after a sojourn in the southern State. Now don't let me Melbourne cannot get hot as it was 103.3 while I was there and when I complained, they promptly told it must be hotter in Townsville as it was closer to the equator. Little do these people know their own country, as I have never seen the century at my home in the north. Even had a swim the following day at their far-famed St. Kilda Beach and it was again over the century. As I managed to have a holiday between the two, the young Little Audrey and Dora, all was well.

In Sydney my trusty chauffeur 2AJL was there to take me around and visit Dural 3WT. What a hard job I had to take Jim Corbin out of having me on the end of the crow bar as he put in a few posts. Needless to say, the chauffeur came along and saved me sweating in a good cause.

Managed to fit in a tour of the boys in the Northern Territory. Cairns, etc. While in Cairns took the opportunity to meet the Z boys who assured me the present Ross Hull Contest gave them better contacts than last year. As I was lucky to have the elusive VKS and VKR, hope to worry Alf for that W.A.B. Boy, did it take a long time to work—seven years.

Local activity in Townsville is in the doldrums as only three stations heard on the bands. What a poor show. Charlie 48Q put me a little together to support 3ZC. What for? Pertinent Question, can anyone tell what will happen to the Lv. viewers on the bands after the Channel 9 when the 10 spots increase in a few years time and the JAs pound through?

The twisted past must be broken as nary a word from the Burdett area. Maybe gravel-voiced Claude too busy or has the job got him down at long last? 73, 4RW.

## TASMANIA

Only seven nominations for the 1964-65 Council were received, and were duly declared elected by the Returning Officer. The names are as follows: Tom 7AL, Snowy 7CH, Charlie 7BY, Geoff 7YJ, Geoff 7ZC, and myself 7ZZ. This means that Len 7LE and David 7ZD did not seek re-election. We welcome the two new members to Council, Charlie 7KS and Geoff 7ZAS, and promise plenty of work for you both, and believe that you both will assume that responsibility gladly.

**Repairs to Receivers, Transmitters; constructing and testing; xtal conv. any frequency; Q5-ers, R5-ers, and transistorised equipment.**

## ECCELESTON ELECTRONICS

146a Cotham Rd., Kew, Vic. Ph. 80-3777

We say farewell from Council to Len and David. Len has for many years been minutes secretary and has fulfilled this post admirably, while David has been on Council just one year. We understand David's decision not to stand again was in view of his frequent absences from Hobart in the direction of his employer. David has also been the contributor of the technical articles to our monthly bulletin.

Amateurs seem to be moving around the State very much these days, and in the removal of Graham 7ZBR and Tony 7ZTC to Hobart from the Launceston area, and the move from Hobart of Reg 7ZAO to Launceston, and Michael 7ZAV and Snowy 7CH both to Burnie, and wish all success to each of you in your new locations. Snowy's (7CH) move from Hobart will deal a severe blow to the Institute as Snowy was re-elected to the new Council.

The following important jobs will now have to be filled, namely, Treasurer, Bulletin Editor and Convener of the Disposables Committee. In these three jobs and in many other active ways, Snowy has played an unobtrusive but invaluable part in our affairs.

The VK3A Memorial Contest has passed again with considerable activity on the Sunday (1st March), but disappointing on the Saturday (29th February). We were delighted to have the participation from northern stations in this contest, and in the upper part of the v.h.f. bands was again noticed. Great fun was had by all taking part, and we suggest to you that you prepare for this event next year.

The National Field Day Contest was disappointing this year because of the terribly wet conditions through the State which severely curtailed portable and mobile activity on both the h.f. and v.h.f. bands in this Contest. 73, 7ZZ.

## HAMADS

Minimum 5/-, for thirty words.

Extra words, 2d. each.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment or services of a personal nature. Copy must be received at P.O. Box 38, East Melbourne, C3, Vic. by 8th of the month and retained until the appearance of the advertisement. Call signs are now permitted in Hamads. Dealers' advertisements not accepted in this column.

**FOR SALE:** Hamcrafters SR150 Transceiver, 500 kc. on all bands 80 through 1P. Upper or lower side or c.w. all bands. Vox, p.t., xtal cal. a.l.c., S meter, etc. Excellent condition. Complete with MR150 mobile mounting rack, PS150 12 transistorised mobile power supply. Home-brew a.c. power supply, speaker and microphone. Complete 150 watt home and mobile station. Price £600. VK2APP, Peter Page, Stoneridge, Montague, N.S.W.

**FOR SALE:** Transmitter: Geloze v.f.o. to 2E26, 25 watts, 80-10 mc, complete with modulator, power supplies and antenna c/o relay, in very nice two-unit rig. £300. Transmitter: 160/80 mc only, v.f.o. controlled, 70 watts c.w., 70 watts peak a.m., gated screen modulator, complete with power supplies, modulator and antenna c/o relay, £20. Heppburn, VK3AFQ, Phone 98-2414 evenings.

**FOR SALE:** VK6GU 4-element Tri-band Beam complete low-loss feeders, excellent condition, £15. Hilco 1400-700-400 aside 200 mA. Transformer, £6. Other gear cheap. J. Mabbitt, Phone 84-7360 (Vic.).

**HAMMARLUND Super-Pro Receiver,** U.S. Navy model. Would appreciate any circuit and wiring diagrams and any other info. Write: Bob Davy, VK4BL, 9 Balding Ave., Werribee, Vic., stating price.

**SELL:** Complete chassis mounted power supply, tapped 500-600-750-1000 v. 350 mA.; filaments 5v. 4a., 6.3v. 4a., 6.3v. 4a., 18v. 1a.; tubes two 5R4GYs, with chokes and condensers, 100% working, £16. Ditto to above but 900v. 300 mA.; filaments 5v. 4a., 6.3v. 4a., 18v. 1a.; tubes two 866s, 12v. d.c. relay supply, with chokes and condensers, 100% working, £16. Ditto to first above but 300v. d.c. at 300 mA. 150v. d.c. regulated, —150 bias, 1t. 12v. a.c., 12v. d.c.; tubes, two 83Vs, one 6X5 one OD3; with swinging and filter choke, made especially for SCR522 equipment, 100% working, £15. Modulator, 75w. Class B 807s (A. & R. kit), complete with tubes 637, 65Q7, 807, two 807s, volume expander incorporated with 0-300 mA. plate meter, £215. Filter Condensers (eight), 2 uF, 3,000v. d.c. working, £16 lot. Power Transformer, 1600-0-1600 v.a.c. 500 mA. (Pye mains), £8. Write or phone VK3ML, 384 Glenferrie Rd., Malvern, Vic. 42-1614 day, 50-6397 night.

**SELL:** Heathkit "Apache" and SB10 Xmttr, built-in pwr. supply. Heathkit "Seneca" v.h.f. Xmttr, 6 and 2 mx, built-in pwr. supply. Electronic Ant. TR switch. Offers to S. E. Widgery, 39 York St. West, Ballarat, Vic.

**SELL:** Radio Amateur Callbook, foreign section, Spring '63, Fall '62 and U.S.A. section Fall '62, each 10/- plus postage. Five-stage two-metre Xmttr with 832 (no pwr. supply) and 10w. modulator (UMI) with pwr. supply £12 O.N.O. Various pwr. and al. Xmttrs, additioens xmttr condensers, c.w.m.s. tubes and mu-metal shield, 12v. genemotors, textbooks, valves, oddments. VK3AWS, 11a Maud St., Ormond, Vic.

**SELL:** 8" T.V., excellent condition, conventional miniature tubes in circuit, incremental tuner, circuit available on 115v. supply converted from car battery, drain 120 watts. Write Parow, P.O. Box 164, Leongatha or Phone Leongatha 2485. Price £75 or offer.

**WANTED:** Commercial S.s.b. Transmitter, state make, input, condition, price. Sell: 33 ft. oregon tapered mast (solid), almost new, £74. VK3AVU, 200 Elgar Rd, Box Hill Sth. Phone 28-2785 (Vic.).

**WANTED:** Type 3 Transceiver, in working order, preferably adapted for phone and complete with microphone. Pay up to £20. Reply V. O'Brien, VK3ACJ, 20 Tucker Street, Horsham, Vic. Phone Horsham 749 (business) or 1044 (residence).

390 p.e.p. 14 Mc. s.s.b. rig, complete with power supplies and v.f.o., also xtal for 3.5 Mc. conversion, £30. A.W.A. Q50084 100 Kc. i.f. amplifier, mixer and demodulator, complete with circuits, £84. New 837 tubes for Collins ART13 transmitter, 25/- or 6-12v. 1 amp. Metal Rectifiers, 2/- ea. Wanted: Tri-Band Beam, VK6RE, Bob Elkin, 10 Craddock Rd., Merredin, W.A.





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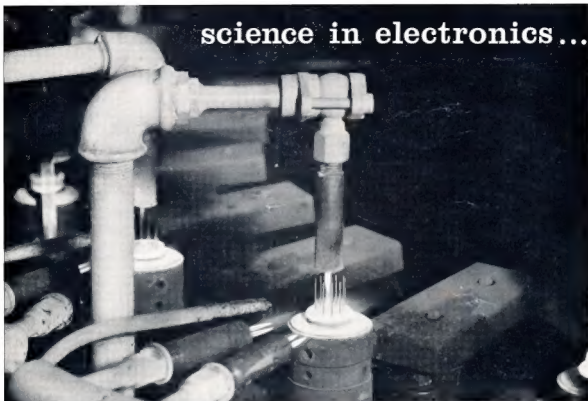
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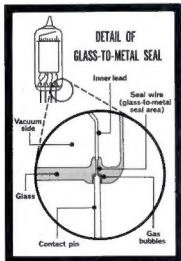
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